

What is claimed is:

1. A substrate holding device for holding a substrate, comprising:

5 a holding member having an atmosphere flow passage for holding said substrate;

a suction pipe for sucking an atmosphere through said atmosphere flow passage; and

a supply pipe for supplying a predetermined gas through said atmosphere flow passage,

10 wherein said predetermined gas is supplied through said supply pipe while said atmosphere is sucked through said suction pipe, to release said substrate from said holding member.

2. The substrate holding device according to claim 1, wherein

15 the supply rate of said predetermined gas supplied through said supply pipe for releasing said substrate is not less than the suction rate of said atmosphere sucked through said suction pipe.

3. The substrate holding device according to claim 1, further comprising

20 a fixing table for fixing said holding member,

wherein said holding member is removably placed on said fixing table.

4. The substrate holding device according to claim 3, wherein

said fixing table includes

25 a table body, and

a positioning member coupled to said table body to define a relative position of said holding member and said fixing table.

5           5. The substrate holding device according to claim 1, wherein  
said predetermined gas is an inert gas.

6. The substrate holding device according to claim 1, wherein  
said supply pipe includes  
an adjustment mechanism for adjusting the supply rate of said predetermined  
10   gas.

7. The substrate holding device according to claim 1, further comprising  
a guide member for guiding said substrate.

15           8. A substrate processing apparatus for performing a predetermined process on  
a substrate, comprising:

a) a substrate holding device including

a-1) a holding member having an atmosphere flow passage for holding said  
substrate,

20           a-2) a suction pipe for sucking an atmosphere through said atmosphere flow  
passage, and

a-3) a supply pipe for supplying a predetermined gas through said atmosphere  
flow passage,

25           said predetermined gas being supplied through said supply pipe while said  
atmosphere is sucked through said suction pipe, to release said substrate from said

holding member; and

b) a processing unit for performing said predetermined process on said substrate held by said substrate holding device.

5           9. A method of releasing a substrate in a substrate holding device having an atmosphere flow passage for holding a substrate under suction, said method comprising the steps of:

(a) sucking an atmosphere through a suction pipe as a part of said atmosphere flow passage;

10           (b) holding a substrate;

(c) supplying a predetermined gas through a supply pipe as a part of said atmosphere flow passage; and

(d) in a state in which said step (a) continues, releasing said substrate held in said step (b), said step (d) being triggered by said step (c).

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10. The method according to claim 9, wherein

in said step (d), the supply rate of said predetermined gas supplied through said supply pipe for releasing said substrate is not less than the suction rate of said atmosphere sucked through said suction pipe.

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11. The method according to claim 9, wherein

in said step (c), said predetermined gas is an inert gas.

12. The method according to claim 9, wherein

25           said step (c) comprises the step of:

(c-1) adjusting the supply rate of said predetermined gas.

13. The method according to claim 9, further comprising the steps of:

(e) after said step (c), stopping said step (a); and

5 (f) after said step (e), stopping said step (c).